

IHS Best Practice Model

Improving Eye Care for American Indians and Alaska Native People with Diabetes

Why is this important and what can we do to help?

Background Information about blindness due to diabetes affecting the retina of the eye, its diagnosis and treatment

American Indians and Alaska Natives have the highest prevalence of diabetes in the United States, in some groups exceeding 50 percent of adults.¹ Diabetic eye disease is the leading cause of new blindness in the United States for people of ages 20 to 74.² Compared to others, people with diabetes have a 25 times greater likelihood of becoming blind.³ Diabetes blinds someone every 15 minutes according to the Centers for Disease Control and Prevention.

According to the American Academy of Ophthalmology, American Optometric Association and the American Diabetes Association, national best practice models indicate that people with diabetes should have diabetic eye exams every year by an ophthalmologist, optometrist or diabetic telemedicine program. If eyes are examined without these special tests, 50 percent of diabetic eye disease affecting the retina is misdiagnosed⁴ Only 40 percent of people with diabetes in the United States get these special annual diabetes eye evaluations yet 90 percent are receiving other health care services. Diabetic telemedicine retinal examinations may be performed via stereoscopic retinal imaging in primary care settings such as family practice clinics, internal medicine clinics, pharmacies and diabetic care centers. Recommended diabetic eye evaluations and treatment could save \$472,010,000 in federal funds and 94,304 person years of sight annually.⁵

Treatments and Interventions to prevent diabetic eye disease blindness and restore vision include the following.

- People with diabetes must have optimal management of their metabolism including blood sugar level and blood pressure to minimize progression of ocular complications. High-risk non-eye complications of diabetes such as high blood pressure and kidney disease must be managed according to American Diabetes Association recommendations.
- Laser treatment must be provided according to Diabetic Retinopathy Study (DRS) and Early Treatment of Diabetic Retinopathy Study (ETDRS) guidelines.

- Patients who have received laser and other diabetic eye treatments must be followed with regular examinations to detect recurrences needing additional treatment.

What are The Goals and objectives of a diabetes eye care program?

- Identify patients early who need treatment that will avoid or minimize vision loss from diabetes.
- Educate and motivate patients and their families about the risks of diabetic eye disease and the importance of early detection and treatment before vision changes occur to ensure the best outcome.
- Provide optimal retinal laser treatment for patients with diabetic eye disease at the disease stage where vision loss is eminent but preventable.

How can a diabetes eye care program's status and unmet needs be assessed?

- You can assess the unmet need for diabetic eye care by doing the following:
 - Determine the diabetic patient population size.
 - Determine the number of the patients in the diabetic population who are not receiving annual eye evaluations.
 - Estimate the yearly number of diabetic patients not receiving needed eye treatment including those that do not keep their treatment appointments and those that have not been identified as needing treatment because they are not getting annual eye evaluations.
- You can identify currently available resources that are providing annual patient evaluations and treatment, including in-facility eye examination and treatment space and equipment, tele-imaging services and out-of-facility eye examination and treatment services.

What steps can you take to reduce blindness from diabetes?

- Step #1 is to identify your target populations.
- For annual diabetes eye evaluations the target population includes all people with diabetes.
- For treatment of diabetic eye disease the target population is all patients found by annual diabetes eye evaluations to have high-risk-for-blindness eye conditions such as advanced pre-proliferative and proliferative diabetic retinopathy.

- Step #2 is to reach your target populations with annual diabetes eye evaluations and treatment when needed as follows:
- Motivate patients to have annual eye exams:
 - Provide patient travel costs for patients to get to their eye evaluations.
 - Ensure that patients understand the benefits to them of having annual eye exams through patient and family education.
 - Provide prescription eyeglasses and/or other incentives to people with diabetes who are up-to-date with all their diabetic standards of care including eye evaluations.
- Ensure adequate availability and accessibility of eye evaluations for people with diabetes by doing the following:
 - Fully staff and provide adequate clinical space and equipment to deliver needed eye evaluations. IHS RRM staffing and facility standards are good reference sources for how many staff and how much space and equipment is needed for any population size.
 - Maximize the ease of making eye evaluation appointments by giving priority “fast-track” appointments to people with diabetes.
 - Provide telemedicine retinal imaging and evaluations in non-eye primary healthcare settings such as pharmacies, family medicine clinics, and community settings to reach patients who do not come to eye clinics.

Step #3 is to provide treatment for patients with diabetic eye disease at the time that will afford the best treatment results by doing the following:

- Carefully monitor the progression of high-risk diabetic eye disease.
- Encourage optimal management of health conditions such as high blood pressure that compound the effects of diabetic eye disease.
- Provide readily available diabetic retinal laser treatment through in-facility or outside services.
- Ensure continuing management of high-risk and already treated eye disease patients as follows:

- Provide patient travel costs, eyeglasses, or other incentives for patients to get treatment for diabetic eye disease.
- Encourage family members and friends to become involved in a patient's eye and health care.
- Have diabetes program representatives or field health workers assist and motivate patients who have difficulty keeping eye examination or treatment appointments to do so.

How can realistic costs for diabetes eye care program components be estimated?

The cost for providing annual diabetes eye evaluations depends upon how and where they are provided. Diabetic eye examination costs are generally reimbursable by Medicare, Medicaid and other third-party health insurance plans.

- In-facility clinical diabetes eye evaluations involve the following costs:
 - Hiring full-time providers averages \$75,000 to \$85,000 yearly for an optometrist or \$125,000 to \$150,000 yearly for an ophthalmologist. The IHS RRM document recommends one primary eye care provider per 5,700 in the served population.
 - Hiring full-time ophthalmic technicians and assistants averages \$21,000 to \$30,000 yearly. The IHS RRM document recommends one support staff position per 2,187 in the served population.
 - Initial purchase of new eye clinic examination room equipment averages \$85,000 per room.

As diabetes tele-medicine modalities are still evolving, extensive research and consultation are recommended before purchase or lease of any specific system to ensure that it will be practical, effective and meet national standards of diabetes care. Diabetic retinal tele-imaging and analysis systems are available by purchase or as lease packages, including charge per patient “turn-key” systems as follows:

- Lease packages including complete hardware and staff for imaging, reading and tracking of 3,000 patients cost approximately \$192,000 annually.
- Prices of purchase-to-own system vary greatly, ranging into six figure amounts.

Out-of-facility eye examination services average approximately \$90 per patient examination, varying from one area of the country to another.

Intervention and treatment for diabetic eye disease varies, depending upon the place and mode of delivery as follows:

- In-facility direct diabetes eye disease laser and other treatments involve the following costs. Diabetic eye treatment costs are generally reimbursable by Medicare, Medicaid and other third-party health insurance plans.
- Hiring full-time ophthalmologists averages \$125,000 to \$150,000 each yearly. The IHS RRM document recommends one ophthalmologist per 25,000 in the served population.
- Hiring a full-time technician averages \$21,000 to \$30,000 yearly. The IHS RRM document recommends one technician per 7,870 in the served population.
- The initial purchase cost of clinical equipment to treat diabetic eye disease, including laser, is \$90,000. Adding equipment for fluorescein angiography and vitrectomy procedures would as much as double this figure.
- Contracted in-facility mobile laser clinic services including staff and equipment vary from one region of the country to another. As an example, Carl Albert Hospital in Ada, Oklahoma, pays \$5,500 per monthly one-day clinic providing 20 patient evaluations and 6 laser treatment procedures.

The cost of out-of-facility diabetes eye disease treatment services is reflected in the Medicare reimbursement rates. These rates vary geographically and may range from \$700 to \$2,000 per eye for a complete treatment.

The provision of prescription eyeglasses is an effective and meaningful incentive for patients to comply with diabetic standards of care, including eye care, and to augment their quality of life and function. The cost of prescription eyeglasses averages \$80 per patient yearly depending upon how and where this service is provided; i.e., in-house or through an outside vendor. Generally, each diabetic patient should receive one pair of eyeglasses yearly when they are compliant with all diabetes standards of care.

What indicators reflect the progress and success or failure of a diabetes eye care program?

- The percentage of all patients with diabetes patients who are receiving annual diabetic eye evaluations.
- The percentage of diabetes patients estimated to need retinal laser treatment that who completed it.

- The percentage of all diabetes patients with 20/200 vision or worse in one or both eyes due to diabetic eye disease.

What criteria reflect the quality of a diabetes eye care grant proposal?

- Does the proposal document unmet need for annual eye evaluations and a clear method to meet this unmet need?
- Does the proposal document unmet need for treatment and a clear method to identify and treat these cases?
- Does the proposal adequately provide for ongoing evaluation of progress and success?

Experts experienced in A I A N diabetic eye care are available for consultation:

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IHS Area Chief Clinical Consultants for Optometry (Eleven IHS Areas have designated optometry consultants that are specifically familiar with eye care in each Area. They may be contacted for questions and consultation through the respective Area Offices.)

Recommended reading and references include the footnotes below, especially the position statement of the American Diabetes Association on diabetic retinopathy in *Diabetic Care* vol 24 supplement 1 January 2001.

¹ Knowler, WC, et al, Diabetes Incidence and Prevalence; A 19-Fold Greater Incidence than in Rochester Minnesota, *American Journal of Epidemiology* 108; 497-505, 1978..

² CDC National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation. Diabetes in the United States: A Strategy for Prevention. A Progress Report to the Technical Advisory Committee for Diabetes Translation and Community Control Programs. Atlanta Georgia: CDC 1994.

³ CDC The Prevention and Treatment of Complications of Diabetes Mellitus: A Guide for Primary Care Practitioners. Atlanta Georgia: CDC 1991.

⁴ Preferred Practice Pattern, Diabetic Retinopathy, American Academy of Ophthalmology, page 4, 1993

⁵ Javitt, J C. et. al. Preventive Eye Care in People with Diabetes is Cost Saving to the Federal Government, *Diabetes Care*, vol. 17, #8, August 1994.